

Application No. 10/696,788
Amendment Dated 4/20/2007
Reply to Office Action of 10/11/2006

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Remarks/Arguments

Claims 21-40 are pending in the application. Claim 21 is presently amended. Claims 31-40 were withdrawn from consideration as being drawn to a non-elected invention.

Entry of this Amendment is appropriate under 37 C.F.R. 1.116 because claim 1 was amended to address the new Sahm reference (U.S. Pat. No. 5,404,661), which was cited for the first time in the last Office Action, and no additional search is required.

Claims 21-30 were rejected under 35 U.S.C. 102(b) as being anticipated by Sahm (U.S. Pat. No. 5,404,661.) This rejection is respectfully traversed for the following reasons.

Sahm discloses a mining shovel equipped with a GPS receiver 202 to provide relevant shovel and bucket location information, among other things. (Col. 18, lines 26-28.) The slope of a work surface is referred to as the bench. (Col. 3, lines 63-64.) "Surveys of the bench are made and either the mining shovel or other support machines, such as track-type tractors or wheel loaders, are used to groom the bench to the proper slope and elevation." (Col. 4, lines 2-6.) An actual site model is updated in real time as it receives new position information from a GPS receiver 702. (Col. 5, lines 14-17.) A digital processor "generates signals representing the difference between the continuously-updated actual site model and the mining engineer's plan. These signals are provided to the operator display and/or automatic machine controls at 708 to direct the operation of the machine over the site to bring the updated actual site model into conformity with the plan. The operator display 708, for example, provides one or more visual representations of the difference between the actual, continuously updated site model and the desired site model or ore locations to guide the operator in excavating the desired material..." (Col. 5, lines 18-24.)

Sahm calculates the location and orientation of the car body 106 and the location of the bucket. (Col. 9, lines 27-30.) A GPS receiver 202 provides three dimensional coordinates to determine the plane of rotation of the car body. (Col. 9, lines 43-60.) "The equation of the plane upon which the car body 106 rotates is calculated, and from this equation, the slope, or roll and pitch, can be displayed using whatever frame of reference is desired." (Col. 9, lines 35-39.) The center of rotation is determined base on points lying the plane of rotation. (Col. 10, lines 22-31.) The center of rotation is used to determine the radius of antenna rotation of the GPS receiver 202. (Col. 11, lines 32-33.) In turn, the radius of antenna rotation is correlated to the distance from the plane of antenna rotation to the ground. (Col. 11, lines 58-62.) The elevation of the ground directly beneath the machine is compared to the desired bench height. (Col. 11, lines 53-56.)

In contrast to Sahm, claim 1 now recites "guiding the vehicle in a direction of travel with compensation data based upon at least one of the estimated roll data and the pitch data such that an actual path of the vehicle follows a target path, an aspect representing a

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direction of maximum slope of ground corresponding to the particular location and used to determine the respective estimated roll data and pitch data for the particular location."

Although Sahm discloses the use of roll and pitch data to determine the plane of rotation of the car body 106 of the mining shovel (Col. 9, lines 43-60), Sahm does not disclose, teach or suggest the use of the aspect (i.e., the direction of **maximum slope**) to determine estimated roll data and pitch data for a particular location as called for in claim 1.

There are other differences between Sahm and claim 1. Sahm's objective is to bring the actual site model into conformity with a desired site model by grading the bench (slope) in the digging area to facilitate mining of material or ore. (See Col. 9, lines 14-15.) In contrast, claim 1 relates to guiding a vehicle with compensation data such that an actual path of the vehicle follows or tracks a target path, rather than deviating from the target path because of hills or other fluctuations in the elevation of the terrain.

For the foregoing reasons, Applicants respectfully request a withdrawal of the rejection of claim 21. Because claims 22-30 depend upon claim 21, claims 22-30 are patentable for at least similar reasons to claim 21.

In conclusion, it is believed that this application is in condition for allowance, and such allowance is respectfully requested.

Any fees or charges due as a result of filing of the present paper may be charged against Deposit Account 04-0525.

Respectfully,




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